621-317

Walker

Mr Carl Hering
* Sep. 1 - 1911 *

Elec. Engineering

Electrical Laboratories

[BLANK PAGE]

[BLANK PAGE]

Electrical

Control and Distribution

OF A

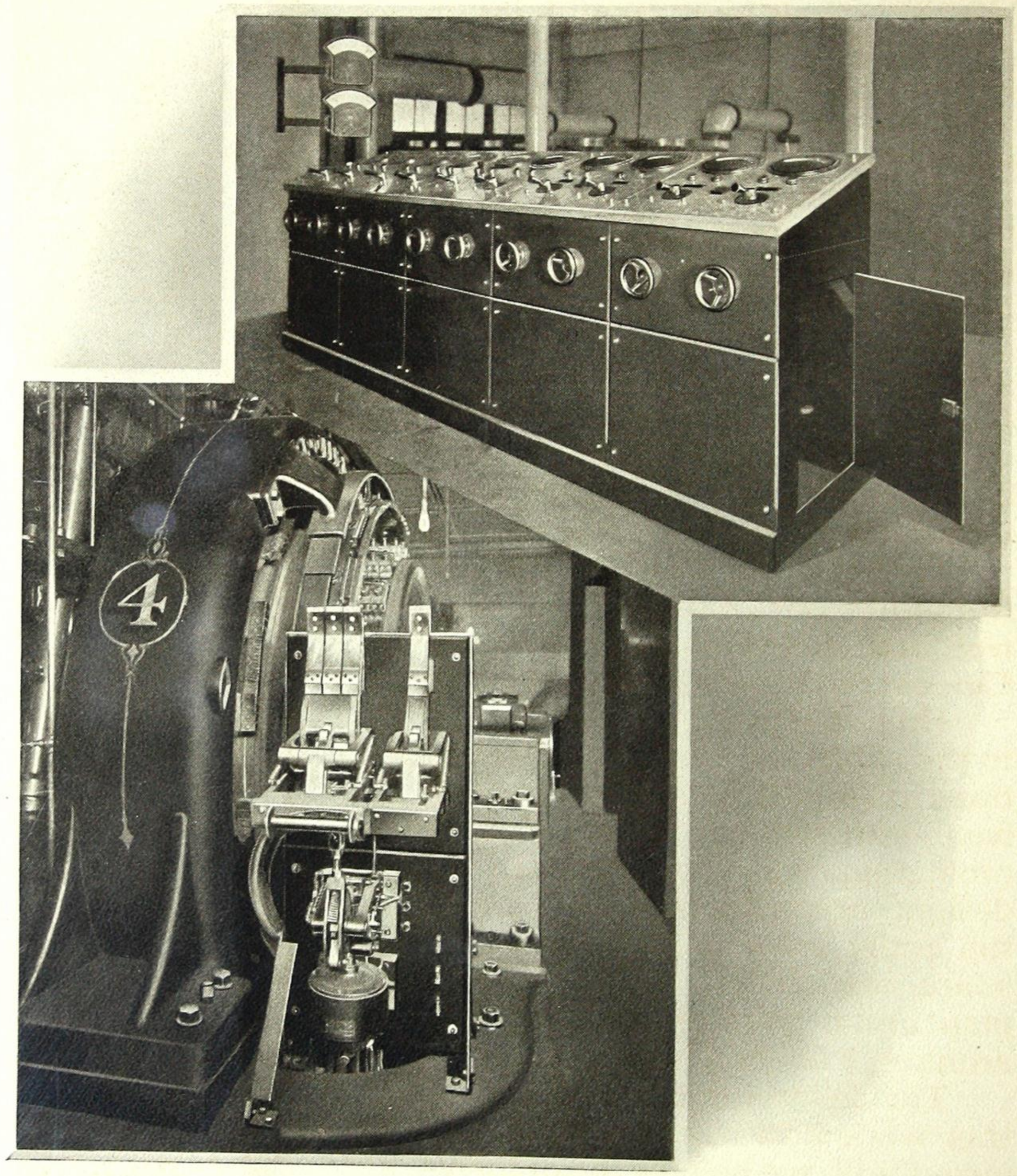
Modern Department Store

MERIT WALKER MARK

COMPLIMENTS OF

Walker Electric Company

1910



BENCH BOARD
operating and controlling ten generators.

I-T-E CIRCUIT BREAKER
six thousand amperes, motor operated,
remote control.

THE up-to-date **Department Store** like the modern **Office Building** is a city in itself: there has never been anything like it before and it would have been impossible of realization to-day had not all the mechanical arts been invoked in its construction and operation.

To **Electricity** perhaps more than to any other one thing is due the ease and rapidity with which these colossal buildings are erected, and not erected only but in a sense brought under one central management and control.

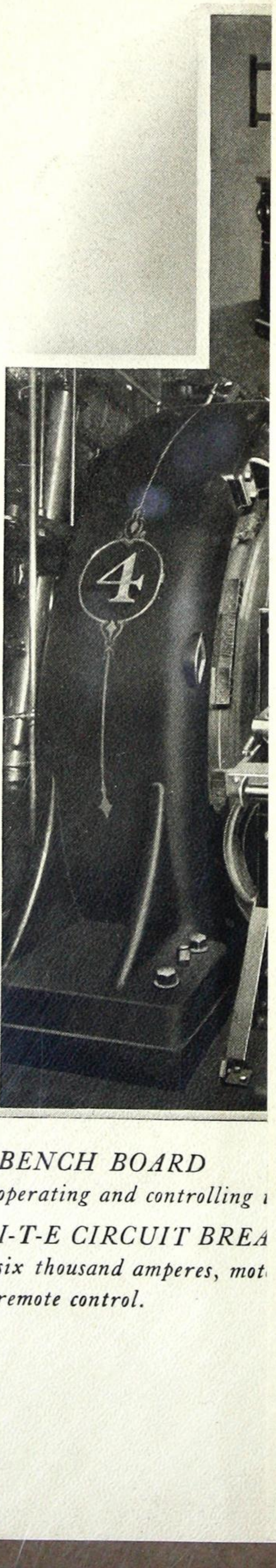
It is, however, with only one of the many details which go to make up this enormous whole that we refer to, howbeit a most important one, namely, **The control and distribution of Electric Current for Lighting and Power.**

Having devoted many years to the subject of electrical installations in large buildings and having been entrusted with many similar problems, we were selected to design, manufacture and erect the entire switchboard and panel board installation in the power plant and new store of John Wanamaker, Philadelphia.

The following brief outline of this work now successfully completed will, we believe, be of interest to those contemplating work of similar character to whom we respectfully offer our services as Engineers and Builders of Ability and Experience.

The Walker Company.

ON SWITCHBOARD
ire output of power plant
to the store.

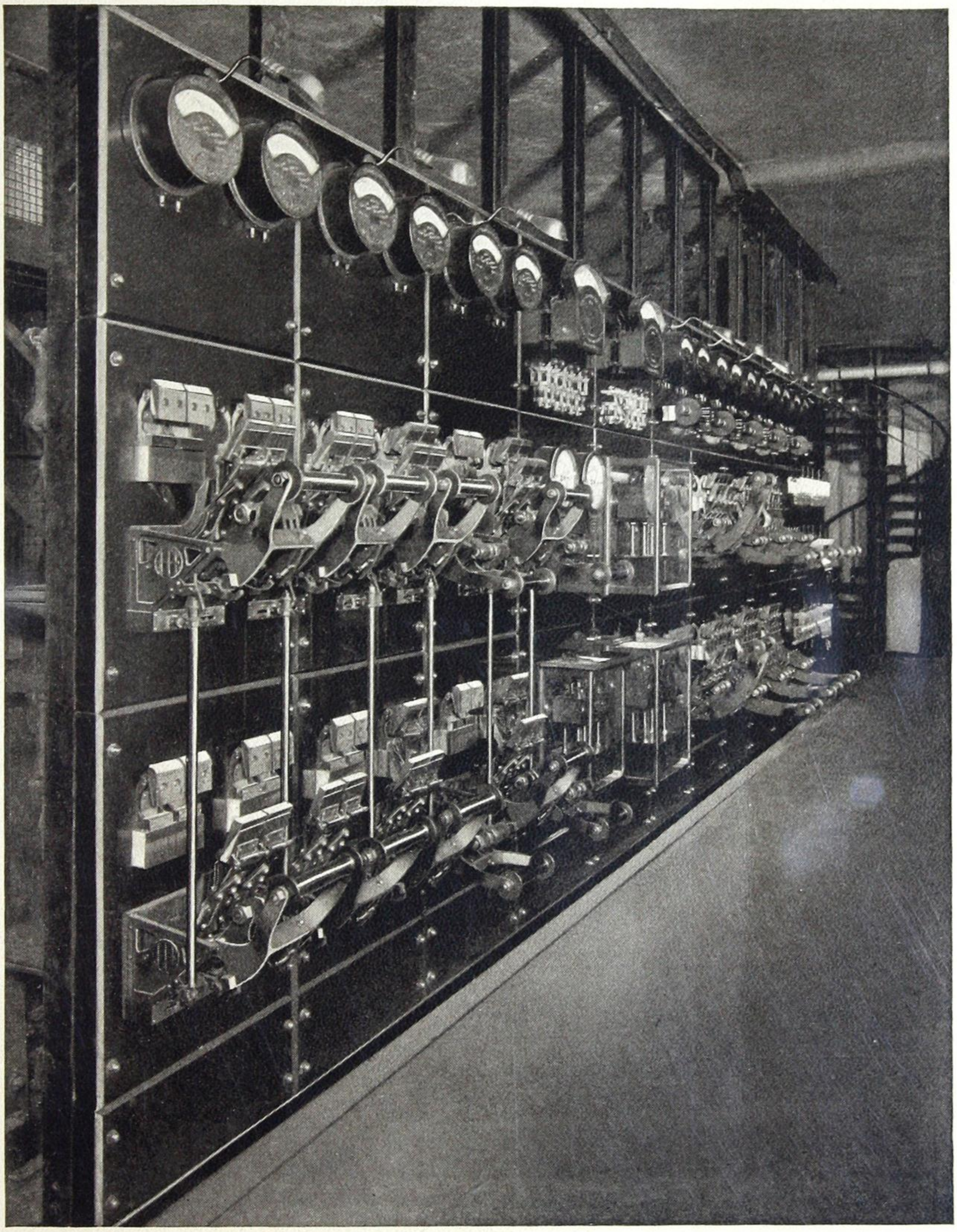


BENCH BOARD
operating and controlling
I-T-E CIRCUIT BREA
six thousand amperes, mot
remote control.

To develop energy for the 50,000 or more electric lights and approximately 1,000 horse power in motors, ten direct current generators (Crocker-Wheeler) of a total capacity of 3,000 killowatts have been installed. The circuit of each generator is controlled by a Motor Operated Circuit Breaker (I-T-E made by the Cutter Company) placed directly along side it and controlled from a bench board located in a mezzanine gallery.

The results obtained are obvious. The circuit breakers can be opened or closed from a distant point with the utmost ease and certainty. The instant handling of a number of generators from one central point occupying the least possible space is thus secured, care being taken that the bench board is so located as to enable the switchboard attendant to face the machinery which he is operating.

Directly behind the bench board and adjacent to it is placed the main distributing board which receives its current supply of 15,000 amperes from a single set of bus bars installed under the Engine Room floor, connected with the generators by means of their respective Motor Operated Circuit Breakers.



MAIN DISTRIBUTION SWITCHBOARD

Distributing entire output of power plant to the store.

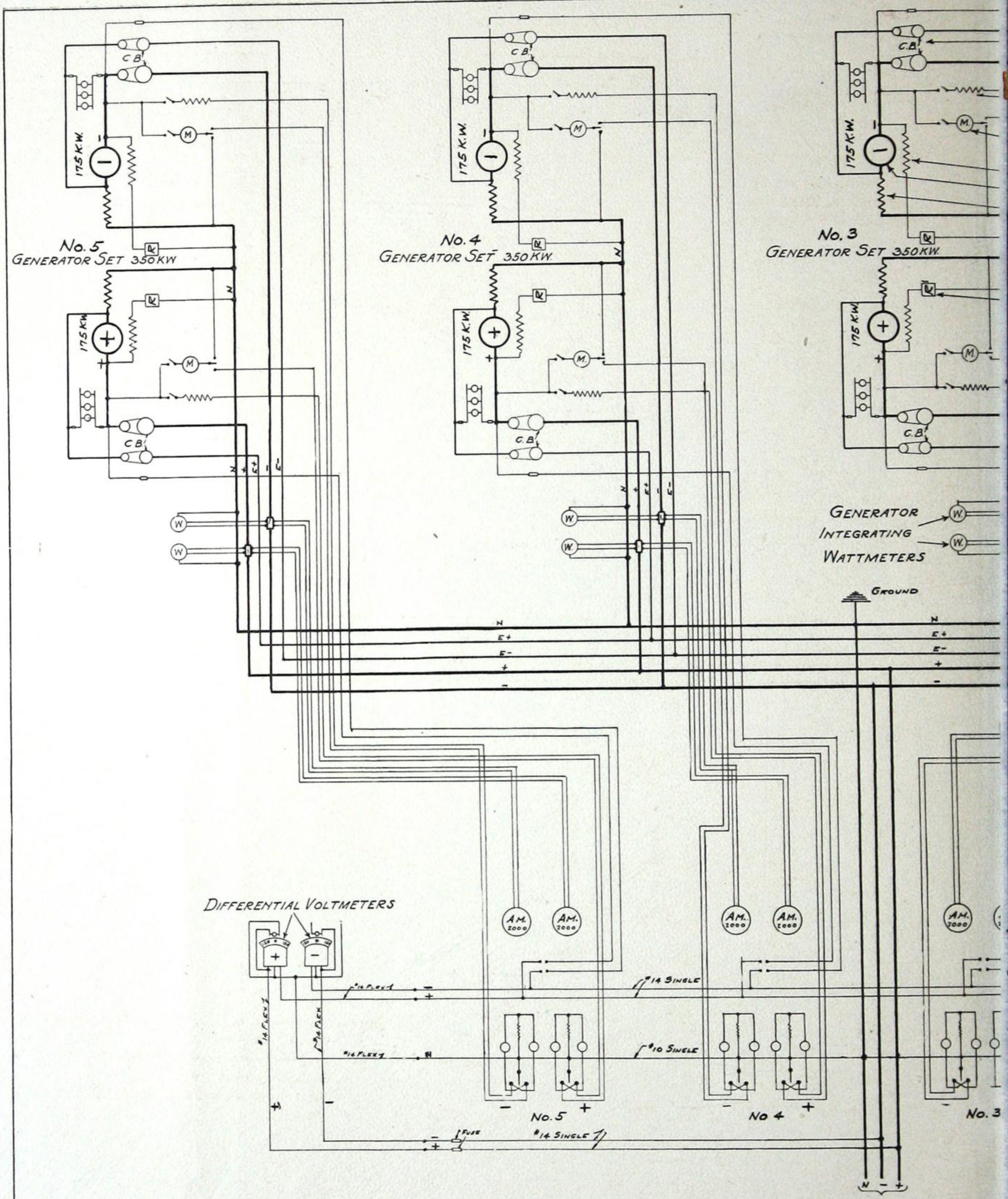
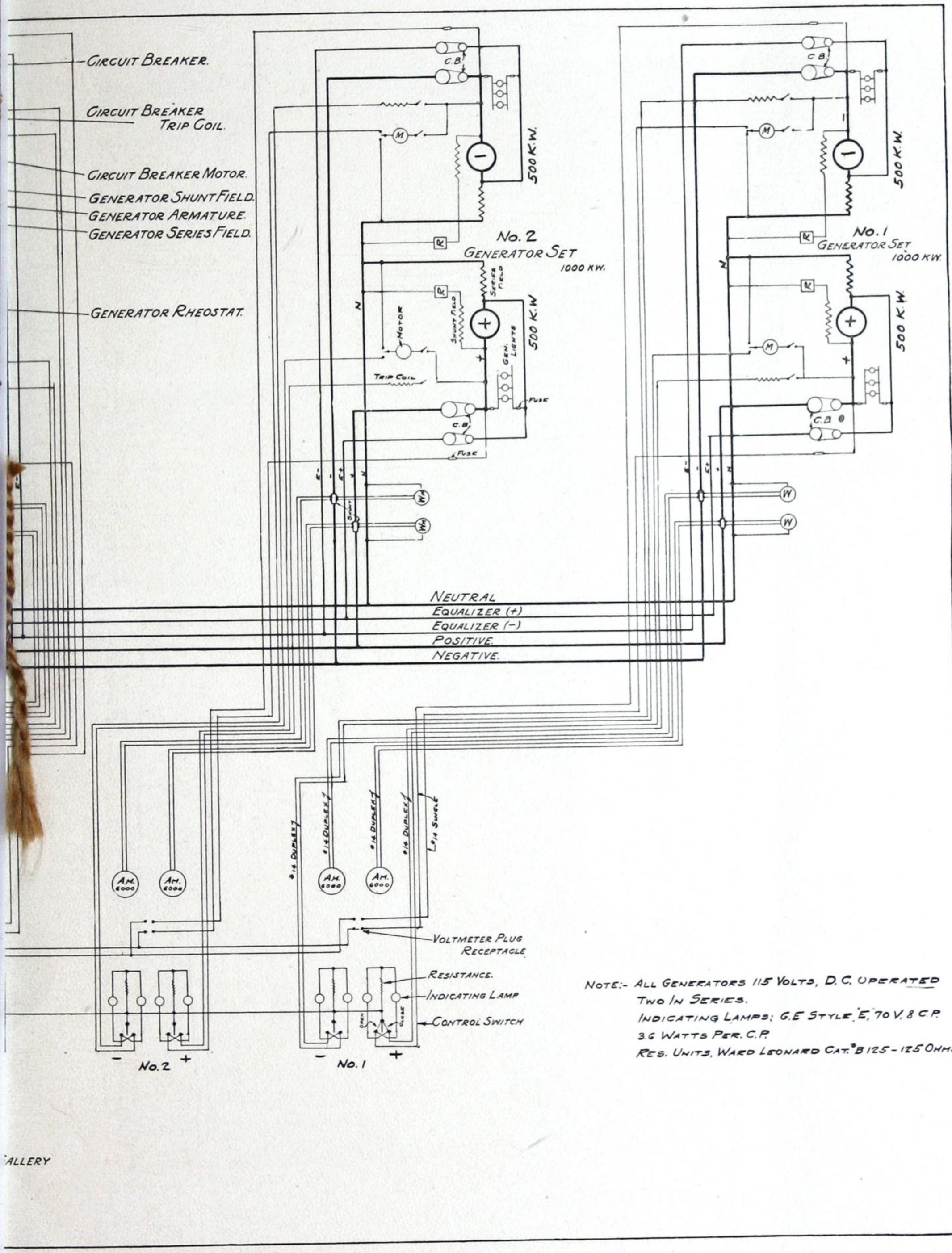
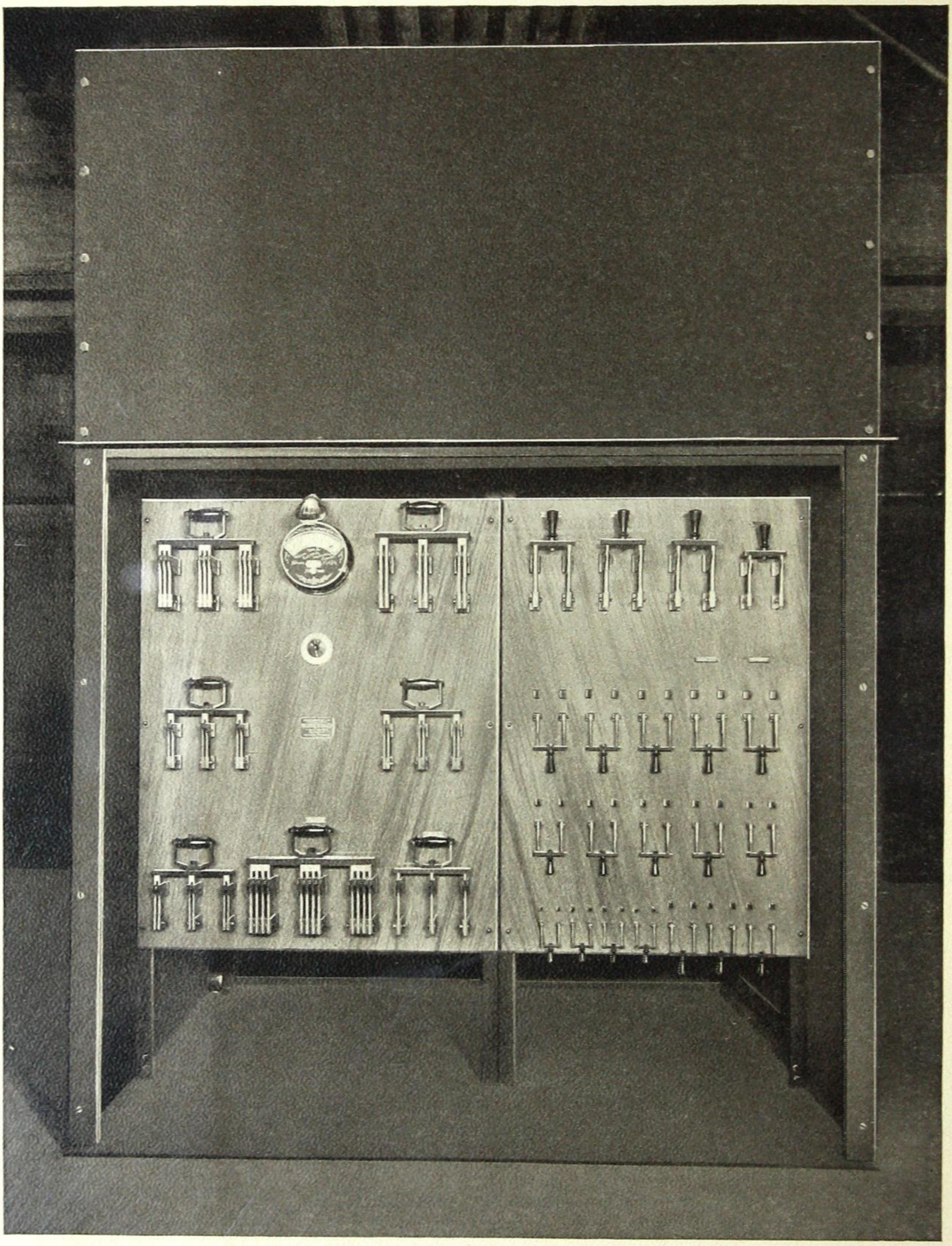


DIAGRAM OF CONNECTIONS
showing connections between generators and bench board only.



NOTE:- ALL GENERATORS 115 VOLTS, D.C. OPERATED TWO IN SERIES.
INDICATING LAMPS; G.E STYLE "E", 70 V. 8 C.P.
3.6 WATTS PER. C.P.
RES. UNITS, WARD LEONARD CAT.# B 125 - 125 OHMS.

GALLERY



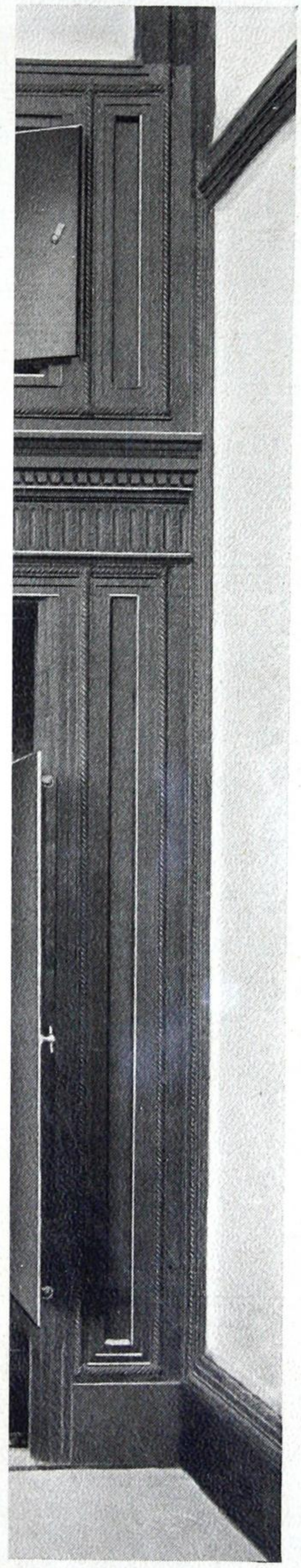
SUB DISTRIBUTION SWITCHBOARD
receiving supply from
main distribution board.

Such an arrangement has the advantage of keeping in service at practically all times the entire amount of copper connections between generators and the distributing switchboard. Both the main connections and the control circuits are clearly shown in the diagram.

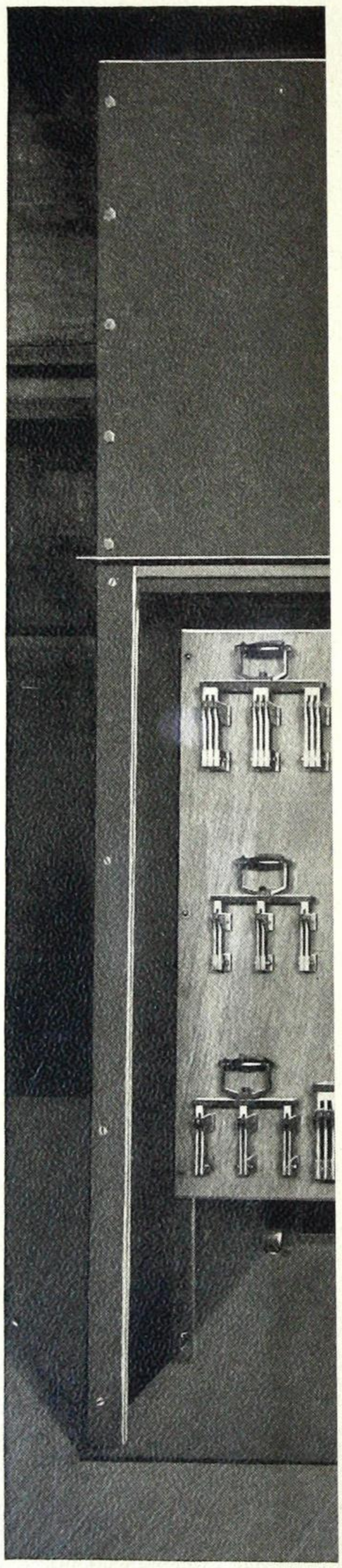
The main distributing board is so arranged that all lighting is measured and distributed from the right-hand end and all power from the left-hand end of the switchboard.

The use of I-T-E "**Directite**" Circuit Breakers for the control and protection of each feeder makes for a very simple and effective arrangement of bus bars and feeder cables. The circuit breakers are two poles high and one pole wide. They are Non-Closeable on Overload and by the use of this construction no hand switch is required.

Each circuit is provided with its ammeter (Weston). From the main distribution switchboard forty-eight 2,000,000 C.M. cables have been run to three sub-distribution boards located in the store basement under the riser shafts. The lighting and power cables have, of course, been kept separate and terminate in panels



PANEL BOARD
distributing to outlets.
above) receiving supply
sub distribution board.



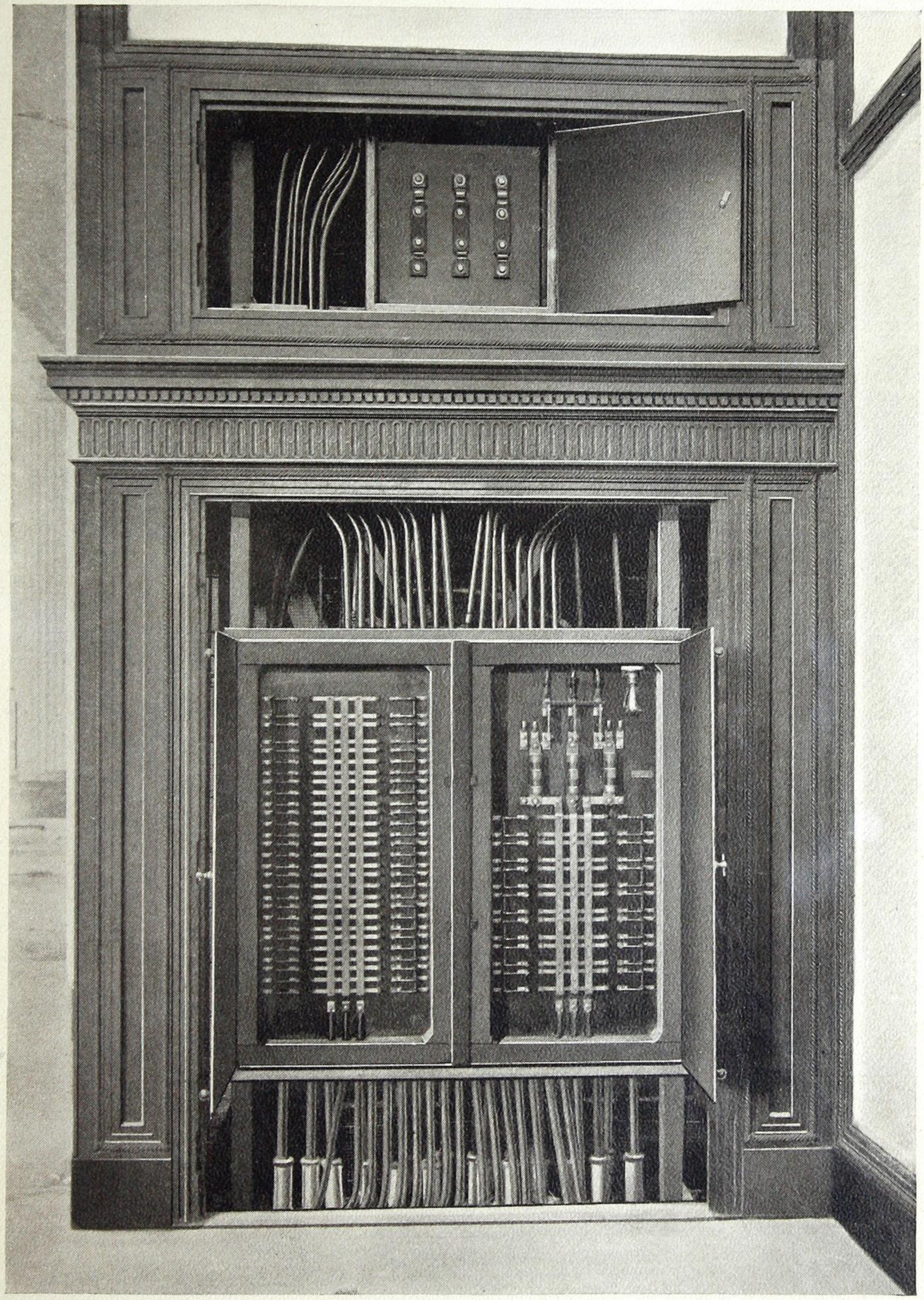
SUB DISTRIBUTION
receiving supply from
main distribution board.

forming sub-distribution boards illustrated on the proceeding page.

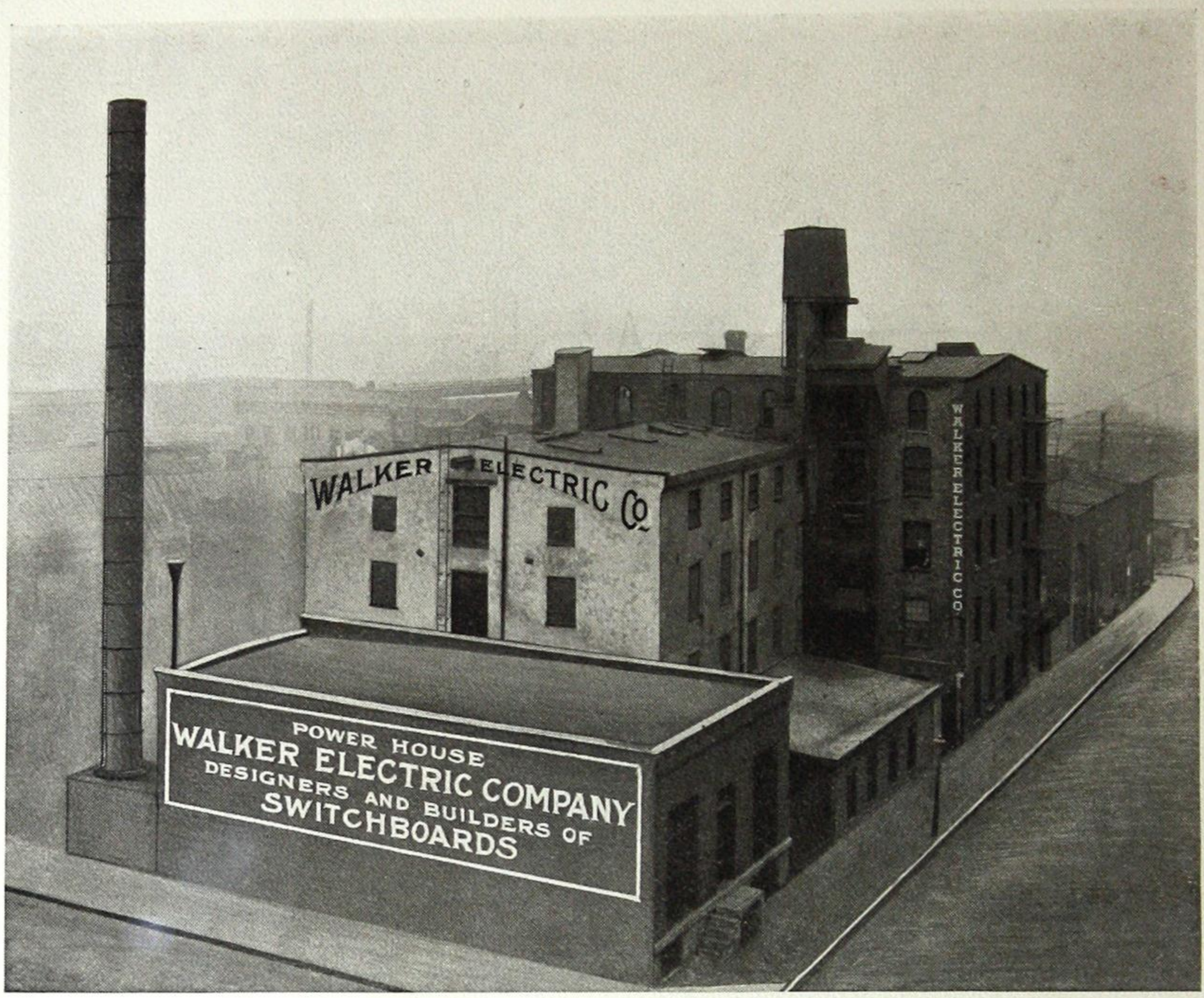
From the sub-distribution boards connections have been made to load centers (which are also illustrated) placed in every other floor near the ceiling. These load centers feed up and down the building to panel boards which distribute directly to the outlets through 25 ampere switches and fuses.

Our description of a plant of this size must necessarily be brief and is intended only to suggest the method of control and distribution in this one installation.

The Consulting Engineer will, we believe, find the diagram of the general layout on pages six and seven of interest and value.



PANEL BOARD
distributing to outlets.
Load Center, (above) receiving supply
from sub distribution board.



THE LARGEST INDEPENDENT PLANT
IN THE WORLD
DEVOTED EXCLUSIVELY TO THE MANUFACTURE OF

SWITCHBOARDS

FOR POWER AND LIGHT

Our entire attention being given to this one branch of the Electrical Industry enables us to offer

Designs by competent engineers of experience

Apparatus selected for its merit, best suited for each particular installation

Workmanship by mechanics trained for each different operation

Sales engineers in five large cities whose only interest is SWITCHBOARDS OF MERIT

Walker Electric Company

FACTORY AND GENERAL OFFICES

Noble and Twenty-fourth Streets

Philadelphia

WESTERN BRANCH

Monadnock Building

Chicago

Park Building, Pittsburg. 39 Cortlandt St., New York City. 84 State St. Boston, Mass.

[BLANK PAGE]

API INTERNATIONAL

CCA